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ABSTRACT

This is a report of a limited study of four factors that might affect a teacher's level of acceptance of mandated change. The factors are: (1) number of years the teacher and principal have worked together; (2) years of experience of the teacher involved in the change process; (3) whether the teacher has tenure; and (4) the participatory nature of the school climate. Data for the study were collected from a review of the literature and from a survey of 61 elementary teachers from one school district participating in a new math program. Results of the study indicated the following with regard to the four factors: (1) Teachers with more time working with their principals were more likely to accept change; (2) teachers' years of experience had no significant affect on their acceptance of change; (3) there was no significant relationship between teachers' tenure and willingness to accept change; and (4) teachers in schools with high participatory management were no more accepting of change than teachers in schools with low participatory management. Since the findings suggest that only the first factor is significant, the practice of rotating principals among buildings within a district should be further examined. (Contains 3 tables and 18 references.) (WFA)

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Teachers' Acceptance of Change: Assessing the Importance of Four Factors

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Abstract

This study investigates four factors that might affect a teacher's level of acceptance of mandated innovation. These factors include (a) the number of years the staff members and the principal have worked together, (b) the years of experience of the staff members involved in the change process, (c) whether the teacher has tenure, and (d) the participatory nature of the school climate. Two major findings were uncovered in this study that educational leaders must consider while guiding teachers through the change process. The first deals with the need for educational leaders to understand and correctly utilize the change process as it relates to each individual teacher. The second finding describes a method by which those who are leading the innovation can monitor and assess the efforts of teachers who are responsible for implementing the change.

Teachers' Acceptance of Change: Assessing the Importance of Four Factors

Oftentimes, teachers within the staff have a variety of concerns and a wide range of perceptions during each phase of the change process. These concerns may be impacted by a number of teacher and school characteristics. Such characteristics include (a) the number of years the staff members and the principal have worked together, (b) the years of experience of the staff members involved in the change process, (c) whether the teacher has tenure, and (d) the participatory nature of the school climate. This study is designed to determine if these characteristics discriminate between teachers who are in the early stages of concern with respect to an innovation with those who are in the later stages of concern.

Since the level of acceptance a teacher has of an innovation is important, leaders need to understand their staff well enough to recognize where the staff as individuals and as a group are on the acceptance continuum. Not only is it essential for educational leaders to recognize their staff's level of acceptance of an innovation, but also the principals need to understand if certain variables increase the probability of teachers accepting an innovation. Once these leaders understand which variables influence the acceptance of the change process, the leaders can focus their time and efforts on the effects of those impacts on the acceptance and understanding of the change being implemented.

Factors Related to the Degree of Acceptance of an Educational Innovation

Several factors may predict the likelihood an innovation will be accepted by a teaching staff. Some of those factors may include (a) the number of years the staff members and the principal have worked together, (b) the years of experience of the staff members involved in the change process, (c) whether the teacher has tenure, and (d) the participatory nature of the school

climate. The remainder of this paper includes a review of the literature on the aforementioned predicting variables.

Number of Years the Teacher and Principal Have Been Working Together

For an innovation to succeed, the role of the principal is significant. During the change process, the principal has a number of responsibilities all of which take time to perform. The first step for a principal in being an effective change agent is to create the desire within the staff to change. Although this may appear to be a simple task, the process is complicated by the numerous considerations the principal needs to address (Edington, 1981). Principals need time to devise individualized support systems to provide positive reinforcement, alleviate tension, and enhance internal communication (Ollie, 1980). Above all, to create an atmosphere conducive for change, the principal needs to establish personal relationships with his or her staff members. Since the change process can be stressful and oftentimes traumatic, the teacher-principal relationships need time to mature to a level where the principal can provide personalized support and direction (Jwaideh, 1984).

Covey (1990) agreed this level of principal/teacher interdependence necessary for synergy to exist needs time in order to be created. To accomplish this, principals need to build quality relationships and effective communication with their staff members (Johnson & Sloan, 1977). Covey used the metaphor of the emotional bank account to describe the strategy needed to build trust in a relationship. He claimed people would trust leaders if over time they demonstrated integrity and acted in a manner that was expected and appreciated by their staff members. When building relationships, Covey stressed quick fix solutions would be too ineffective to develop relationships of the caliber necessary to synergize.

Although there does not appear to be a correlation between the effectiveness of the principal during the change process and the amount of time he or she spends on the job, there is a high correlation between the effectiveness of the principal and the amount of time he or she spends on important issues (Edington, 1981). One important issue is the relationship between the principal and the staff members, individually and collectively. Since it is critical for principals to know the members of their staff before the implementation of change, the length of time the principal knows their staff members before the change process begins is significant because of the time necessary to build those relationships.

The level of understanding between the administrator and his or her teaching staff is directly proportional to the likelihood the innovation will succeed as planned – as the former decreases, so does the latter. The educational leader must take several steps during the change process to decrease the likelihood of misunderstandings and confusion with the staff, thus increasing the chances of a successful implementation. In summary, the institutionalization of the innovation is not likely when the level of interpersonal understanding between the principal and teaching staff is not adequate and this takes time to create.

Years of Teaching Experience

Several explanations describe why schools have such a strong culture. One consideration is the age of the staff and societal demands placed upon them. Until the late 1960s and early 1970s, teachers were primarily women, most of whom only stayed in the field long enough to get married and have children. Currently, more men than women are in the field of education and most teachers choose education as a lifelong career path – they plan to stay until retirement. Since the first generation to exhibit this commitment began in the 1960s, this was termed the 60s

cohort. This large influx of people with similar goals, ideas and outlooks on life brought more continuity to the culture of schools, thereby making the culture stronger (Evans, 1996).

Currently, most teachers are middle aged, in the middle of their careers, and have been impacted by the 60s cohort. Teachers who are middle aged are said to be in the "sandwich generation" (Evans, 1996). Their children are going off to college and their parents are going into assisted living accommodations. For these reasons, they have many demands outside of school. Considering every aspect of their life is changing, these teachers need school to be stable, rational, and predictable.

Teachers in the middle of their careers also are at a point where they have mastered the basic skills of their trade. They are looking for leadership roles, which schools seldom have to offer. Since schools are not challenging teachers, their job becomes tedious and the teachers become apathetic. For these reasons, changing everything is not an option they are willing to consider. In their mind, they have mastered their profession. Although at one time they were current, they tend not to maintain that level of excellence. If their building principal asked them to change, then it would be as if he or she were telling them they have been doing things wrong their entire lives.

Tenure

In order for a school to change, the individuals within the school must alter their beliefs and behaviors. Tenure is seen as an impediment to personal change (Nedwek, 1998) for a variety of reasons. Two factors support this premise: The inability to dismiss inflexible staff creates a high level of job security, and the prevalence of individual fiefdoms creates an unproductive competition.

Not only are schools changing more rapidly than in years past, but also the unpredictable nature of the changes they face forces them to change without the long-term planning they once enjoyed (Gilliland, 1997). The entrenched nature of many tenured teachers does not lend itself to accelerated and unpredicted change.

Peters (1987) did not support the belief that tenure was an obstacle to rapid, complex, and unpredictable change. Instead, he claimed tenure was an essential ingredient to significant change because it provided a sense of security, which is necessary for people who need to take these substantial risks. He believed in order to demand constant risk-taking and flexible responses to extreme situations, members of an organization needed to be guaranteed continuous employment. In other words, as fear increases, the ability for workers to take risks decreases.

Participatory Nature of the School Climate

By studying the characteristics of effective work groups, Likert (1967) was able to combine many of the aforementioned variables into characteristics, which he claimed would define the effectiveness of a school. He maintained that school policies, standard operating procedures, and administrative decisions did not directly influence the effectiveness of a school. Instead, he asserted they only would influence how staff members and students perceive and feel the attitudes and values they share, the trust and support binding them together, and the degree to which they are motivated to work and are committed to school goals and purposes. It is these mediating indicators which in turn influence the effectiveness of the school. Likert determined the following mediating indicators to be important when determining the participatory nature of a specific organization: (a) the degree to which the staff perceives the organizational climate as trustworthy; (b) the degree to which the staff perceives the organizational climate as providing

motivation; (c) the degree to which the staff perceives the organizational climate as having open and productive dialogue; (d) the degree to which the staff perceives they have input in the decision making process; (e) the degree to which the staff perceives the organizational climate as being able to resolve conflicts; and (f) the degree to which the staff perceives the organizational climate as goal oriented. He believed the more participatory an organization is, the more accepting of change it will be.

Likert recognized consistencies in the patterns of the mediating variables followed by organizations. He identified four well-defined patterns of management, which exist on a continuum: Systems 1, 2, 3, and 4. Each level illustrates the organizational climate and leadership behavior assessed in terms of the organizational characteristics experienced by the staff members. He claimed as the management system level increased so did the level of participation of the work community, and a higher degree of participation indicated a more effective school.

Likert asserted as organizations became more participative, they were more effective. This is because when stakeholders participate in this process, it provides ownership and prompts the development of teamwork necessary in an effective organization. The ownership and teamwork created in an organization results in a raised level of consciousness for the leader. All of this is vital to the development of his or her followers as well as the efficiency of his or her organization.

This results in a certain degree of loyalty between the educational leader and the stakeholders which is necessary to create a human relations perspective, which Doyle and Hartle (1985) termed Human Resources and what Likert described as System 4: Participative Group

(Likert, 1967). These views emphasize the participation of each individual through intense socialization, which results when the teaching staff identifies with the values and goals of the organization. Therefore, the culture depicted not only the goals of the organization, but also the goals of the staff.

In the human resources model, the leader is still ultimately responsible for decision-making. In normative leadership, only the values of the community dictate the behavior of the organization. This poststructuralist view of leadership represents the fundamental needs of the parents, students, and community members (Owens, 1998). Chubb and Moe (1990) held this could only occur if members of the bureaucracy forfeit their power and place it in the hands of the schools. Each school must be autonomous and tap into the professional creativity of its members to design programs that address the needs of the community.

Research Questions

Based on a review of the literature regarding acceptance of innovation in education, the following relationships were expected to exist: (a) the longer a teacher and principal work together the more accepting the teacher will be of change (Evans, 1996; Griener and Schein 1988; and Spall, 1998); (b) the more experience a teacher has, the less accepting one would expect he/she will be of change (Evans, 1996); (c) teachers having tenure are less accepting of change (Gilliland, 1997; Nedwek, 1998; & Peters, 1987); and (d) the more participatory a teacher perceives the school climate to be the more accepting of change that teacher will be (Likert, 1967). The four corresponding null hypotheses were as follow:

1. $1H_0$: Teachers with more years working with their principals are not more likely to be identified as members of the late-stages-of-concern group than teachers with fewer

years working with their principals adjusting for the differences in tenure status, years of teaching experience, and perceived management style scores.

2. $2H_0$: Teachers with more years of teaching experience are not less likely to be identified as members of the late-stages-of-concern group than teachers with fewer years of teaching experience adjusting for the differences in years of working with the principal, tenure status, and perceived management style scores.
3. H_0: Teachers who possess tenure are not less likely to be identified as members of the late-stages-of-concern group than teachers without tenure adjusting for the differences in years of working with the principal, years of experience, and perceived management style scores.
4. $4H_0$: Teachers with higher management style scores are not more likely to be identified as members of the late-stages-of-concern group than teachers with lower management style scores adjusting for the differences in years of working with the principal, years of teaching experience, and tenure status.

School System Used in the Study

For this investigation, a large suburban school district in North Central Ohio which serves approximately 7,000 students, was selected. By state standards, the school district is upper-income having a per pupil tax valuation of $112, 669 as compared to the state average of $97, 073. Although the median income in the district is $35,676 per household as compared to the state average of $27,232, there is great socioeconomic diversity ranging from million dollar homes to subsidized housing developments. The citizenry of the district is 98% Caucasian. The transient nature of the district is illustrated by the fact that 6% of the students who enrolled at the

beginning of the school year have transferred out by the end of the school year; yet, there is a net student increase of 3% during the same period of time.

Although the community is transient, the district has experienced stability in leadership. The superintendent and the assistant superintendent have held their respective positions for 14 years and 13 years respectively. Four of the five school board members have been in office for more than eight years – the fifth was selected when a long-time member of the school board took a full-time job with the school district.

The district consists of five-primary grades buildings, housing grades 1 through 5; two middle schools, grades 6 through 8; one kindergarten-only building; and one high school, grades 9 through 12. Four of the elementary schools were well maintained. The fifth was newly constructed and opened for the first time at the beginning of the 2001-2002 school year. The staff assigned to the new building was comprised of teachers from throughout the district in addition to teachers new to the district.

The Research Participants

The staff from the building that opened for the 2001-2002 school year was not included in this study because the principal was new to the building and the staff had been assembled only a few months prior to the study. Therefore, none of the teachers had any working history with their current principal and a stable culture had not yet had a chance to develop. Both of these were characteristics being investigated in this study. The number of teachers in each of the four remaining building were: (a) School 1 – 48 teachers, (b) School 2 – 51 teachers, (c) School 3 – 45 teachers, and (d) School 4 – 34 teachers.

Since the innovation investigated in this study included the New Math Program, only the elementary teachers who taught math received the survey. Since teachers who taught fourth - and fifth-grade students were departmentalized, not all of them taught math. Therefore, the numbers of teachers surveyed in the building were (a) School 1 - 24 teachers; (b) School 2 – 23 teachers; (c) School 3 – 23; and (d) School 4 – 15 teachers. This brought the total number of teachers who were surveyed to 85. Of those teachers surveyed, 61 responded.

Data

Since this study assessed the relationship of four factors to the acceptance of change regarding an instructional innovation implemented by elementary teachers, the information regarding these four factors and the teachers' degree of acceptance of change was obtained through a survey.

Dependent Variable

The level of acceptance of an innovation among the teachers, which was obtained from the survey, served as the dependent variable for this study. The instruments used to gather the information regarding the teachers' acceptance of an innovation were the Concerns Based Assessment Model (CBAM) questionnaire. The 35 items contained in the CBAM questionnaire are not innovation specific. Each item articulates a concern about the innovation. Those taking the survey expressed a degree to which each concern is indicative of them by marking a number next to each statement on a Likert scale of zero to six. High numbers indicate high level of concern while low numbers represent a low level of concern. Based on internal consistency estimates, the test reliability was reported to range between .64 and .71. Test-retest reliability ranged between .65 - .71 (Hall, George & Rutherford, 1998).

The statements in the CBAM questionnaire were to represent seven basic areas of concern. Each scale consists of items representing concerns, which are prominent at a specific stage of concern. Five statements represent each of the seven stages of concern. To calculate the raw score for each scale of the CBAM, the sum of the responses to the five statements were calculated. To offset the items left unmarked, the average of the other items in that category was substituted for the missing value. After obtaining the seven raw scores of each stage of concern, they were converted to percentiles. The highest of the seven percentile scores of a given teacher was used to assign that teacher to one of the seven stages of concern.

Once the teachers were assigned to one of the seven stages of concern, they were divided into two groups -- an early-stage-of-concern group and a late-stage-of-concern group. The early-stage-of-concern group consisted of the first three stages of concern – awareness, informational, and personal. The late-stage-of-concern group consisted of the later four stages – management, consequence, collaboration, and refocusing. These two groups of teachers were represented by a variable labeled Group in this study. The Group variable had a value of zero for each teacher placed in the early-stages-of-concern group; while a value of one indicated the teacher had been placed in the late-stages-of-concern group. The descriptive statistics contained in Table 1 reveal the mean for this dependent variable was 41. This value indicates 41% of the 61 teachers were identified as being in the later-stages-of-concern group.

Insert Table 1 about here

Independent Variables

The four research questions involved four independent variables. These variables consisted of the following teacher information: (a) years of teaching experience, (b) years working with the principal, (c) tenure status, and (d) the Profile of School Indicator Score, Teacher Form 3. The mean number of years of teaching experience and years working with the principal were 13.72 and 4.92, respectively (see Table 1). The Tenure variable consisted of two values. A value of zero indicated the teacher was not tenured, while a tenured teacher was assigned a value of one. As revealed by the mean value of .52 for the Tenure variable, 52% of the 61 teachers were tenured (see Table 1).

The fourth independent variable consisted of scores obtained from the Profile of a School Teacher Form 3 (POS). The POS questionnaire is comprised of 72 statements. Each statement was designed to gather specific information on variables predetermined to assess organizational practices and behaviors. The composite profile of the school's management system was determined by calculating the sum of the individual teacher's responses to each question. The higher the score, the more participative the teacher perceived the school's climate to be. The reliability for this instrument was measured by using the split-half reliability coefficient (Spearman-Brown) method of +.98. The mean (POS) score for the 61 teachers was 429.72. (see Table 1).

Logistic Regression Model

Since the dependent variable consisted of two categories (i.e., early-stage-of- concern group and late-stage-of-concern group) and the research questions required the use of four independent variables, a logistic regression model was designed and analyzed.

Before this logistic regression model could be used to test each of the four null hypotheses, it had to be tested for outliers, multicollinearity, and interaction effects between the independent variables. If these tests revealed the existence of outliers, multicollinearity, or the existence of interaction effects, the data and/or the research questions would need to be modified.

Assessing the Presence of Outliers

Cook's d value is used to determine the amount of influence a teacher's set of data had on the degree of fit of the entire data set to the model. When a teacher's set of data was deemed to significantly degrade the degree of model fit, one or more pieces of the teacher's data set would be identified as outliers. To assess the Cook's d values, which are calculated for each case (i.e., each teacher), the values were compared to the F value located at the 50^{th} percentile of the F distribution with five degrees of freedom for the numerator and 56 degrees of freedom for the denominator. This F value, which is labeled the critical F value, was .88. Any Cook's d value greater than this critical F value of .88 would indicate the case (i.e., the teacher's data set) contained one or more outliers. Since none of the Cook's d values computed for the data set contained in this study exceeded the .88 critical F value, outliers were determined not to exist. Based on these results, all the data for the 61 teachers were included in the testing of the four null hypotheses.

Assessing Multicollinearity

Variance inflation factor (VIF) values were calculated to assess the degree of relationship among the predictor variables. The VIF value for the management style scores, years of teaching experience, years working with the principal, and tenure status were 1.07, 1.88, 1.61, and 1.42. Only VIF values in excess of ten were judged to indicate an unacceptable degree of

multicollinearity. Since none of the four VIF values approach the value of 10, multicollinearity was deemed not to be a problem in the testing of the four null hypotheses with the proposed logistic regression model.

Assessing Interaction Effects

The logistic regression model designed to test statistically the four null hypotheses included four independent variables. The null hypotheses and thus the model, do not reflect interaction effects. To ensure that it is appropriate to not include interaction effects, the six possible two-way interaction effects were tested. Higher order interaction effects (i.e., the three three-way interaction effects, and the four-way interaction effect) were not tested, and therefore assumed not to exist due to the lack of theoretical support for such interaction effects.

Six independent variables were constructed to reflect two-way interaction terms for the four independent variables. Specifically, the variables used to represent the following two-way interaction effects were: (a) management style scores and years of teaching experience (b) management style scores and years working with the principal, (c) management style scores and tenure status, (d) years of teaching experience and years working with the principal, (e) years of teaching experience and tenure status, and (f) years working with the principal and tenure status.

Each of the six interaction effects was included in a logistic regression model along with its corresponding main effects. A Wald test was used to statistically test, at the .05 level of significance, each of the six two-way interaction effects. The Wald tests produced the following:

1. The probability value for the management style scores and years of teaching experience interaction effect was .242.

2. The probability value for the management style scores and years working with the principal experience interaction effect was .621.
3. The probability value for the management style scores and tenure status experience interaction effect was .547.
4. The probability value for the years of teaching experience and years working with the principal experience interaction effect was .922.
5. The probability value for the years of teaching experience and tenure status experience interaction effect was .709.
6. The probability value for the years working with the principal and tenure status experience interaction effect was .595.

None of the six probability values was less than the .05 level of significance. Thus, none of the two-way interaction effects was significant. Based on these results and assumptions regarding higher order interaction effects, the four null hypotheses and the logistic model proposed to test them were not modified to reflect interaction effects.

Assessing the Model's Ability to Predict

The model's ability to predict was evaluated through the following: (a) the Nagelkerke R^2 value and (b) the c statistic. The Nagelkerke R^2 value for this study was .071. This indicates 7.1% of "variation" in the outcome variable was explained by the variables contained in the logistic regression model.

The c statistic is interpreted as the proportion of pairs of cases with different observed outcomes in which the model results in a higher probability for the cases with the event than for the cases without the event. The c statistic ranges in value from .5 to 1.0. A value of .5 indicates

that the logistic model is no better than chance for assigning cases to groups. The c statistic, which is equal to the area under the Receiver Operating Characteristic (ROC) curve, was equal to .59. This means that when comparing all possible pairs of teachers assigned to group one with all teachers assigned to group zero, 59% of the time the teacher assigned to group one had a higher probability of being assigned to group one than the teacher assigned to group zero.

Testing the Null Hypotheses

Based on the results of the tests used to detect outliers, multicollinearity, and two-way interaction effects, the logistic regression model that contained the four independent variables was used to test the sample of 61 teachers for each of the four null hypotheses originally proposed. Wald tests of the four logistic regression coefficients, which were generated for the four independent variables, were used to test the four null hypotheses. If the coefficient for a given independent variable possessed the hypothesized sign and the directional probability value (i.e., the one-tailed probability) of its Wald test was less than the .05 level of significance, the corresponding null hypothesis was rejected. The results produced by the logistic regression model are contained in Table 2.

Insert Table 2 about here

Hypothesis 1. The coefficient had the hypothesized positive sign (.161). In addition, the Wald test value, which was 2.848, produced the one-tailed probability of .046. Since this probability value was less than the stated .05 level of significance, the null hypothesis was rejected. Therefore, teachers with more years working with their principals are more likely of

being identified as members of the late-stages-of-concern group than teachers with fewer years working with their principals adjusting for the differences in tenure status, years of teaching experience, and perceived management style scores.

Hypothesis 2. The coefficient had the hypothesized negative sign (-.021). The Wald test value of .301 produced a one-tailed probability of .292. Since this probability value was greater than the stated .05 level of significance, the null hypothesis was not rejected. Therefore, teachers with more years of teaching experience are not less likely to be identified as members of the late-stages-of-concern group than teachers with fewer years of teaching experience adjusting for the differences in years of working with the principal, tenure status, and perceived management style scores.

Hypothesis 3. The coefficient had the hypothesized negative sign (-.306). The Wald test value of .225 produced one-tailed probability of .318. Since this probability value was greater than the stated .05 level of significance, the null hypothesis was not rejected. Therefore, teachers who possess tenure are not less likely to be identified as members of the late-stages-of-concern group than teachers without tenure adjusting for the differences in years of working with the principal, years of experience, and perceived management style scores.

Hypothesis 4. The coefficient (-.002) did not have the expected positive sign. Thus, the Wald test was not used to reject the directional null hypothesis. Thus, teachers with higher management style scores are not more likely to be identified as members of the late-stages-of-concern group than teachers with lower management style scores adjusting for the differences in years of working with the principal, years of teaching experience, and tenure status.

Interpretation of Significant Coefficients

Two methods were used to interpret statistically significant logistic regression coefficients. First, the Delta-p value was calculated. The Delta-p value represents the incremental effect on the outcome variable resulting from a one unit change in the independent variable evaluated at the mean of the outcome variable. Second, the change in the probability of being classified as belonging to the group assigned a value of one was calculated for each value contained in a series of initial probability values. Since only the coefficient for the years-of-experience variable was significant, these two methods will be applied to just this one coefficient.

The Delta-p value was calculated for the initial probability level of .41, which is the proportion of the sample found to be in the later-stages-of-concern group. The Delta-p value was .04. This value can be interpreted as follows: Assume we have two teachers, who are labeled Teacher A and Teacher B, who have the same number of years of teaching experience, tenure status, and management style scores. Teacher A, however, has one more year of working with the principal than does Teacher B. In addition, the probability that Teacher B belongs to the later-stages-of-concern group is .41. The likelihood that Teacher A belongs to the later-stages-of-concern group is .04 higher than the probability for Teacher B. This .04 value appears to indicate that the increase in the probability of belonging to the later-stages-of-concern group associated with a one-year increase in working with the principal is relatively modest.

Since the change in the probability of belonging to the late-stages-of-concern group does not remain constant over the range of initial probability values, it may be useful to calculate the changes for various initial probability values. The predicted probability values for the 61

teachers, which were obtained from the logistic regression model, range from approximately .20 to .70. Table 3 contains the changes in probability values for a series of initial probability values starting with .20 and ending with .70, using increments of .10. The changes range from .028 for an initial probability value of .20 to .033 for an initial probability value of .70. The maximum change in the probability level was .04. Once again, these values appear to indicate that the increase in the probability of belonging to the late-stages-of-concern group associated with a one-year increase in working with the principal appears relatively small.

It should be noted, however, the change in the probability levels could be quite substantial for changes in years of experience with the principal that exceed one year. To illustrate, consider two teachers who have a difference of four years of experience working with their principals, which is approximately one standard deviation. The difference between the probability levels of belonging to the late-stages-of-concern group for these two teachers as estimated by the model could reach .16 depending on their initial probabilities, which may be regarded as more than minimal.

Insert Table 3 about here

Summary

The findings in this study supported the results reported in the literature for the first hypothesis. The results indicated teachers with more experience working with their principals were more likely to belong to the later-stages-of-concern group than the teachers with less experience working with their principals. An analysis of the magnitude of the increase in this

likelihood suggested that although the increase in probability of belonging to the later-stages-of-concern group associated with each additional year of experience with the principal was rather small, the increases for three or more years of experience with the same principal were at least moderate.

Based on the literature, the more experience a teacher has, the less accepting he or she will be of change. Although the logistic coefficient depicting this relationship was negative, it was not statistically significant. Two reasons exist which may explain why the findings of this study did not support the hypotheses. First, the teachers involved in this study were not a part of the team that developed the change. Instead, central office personnel developed this concept and then handed it down to the elementary school teachers. The lack of participation by the teaching staff in the planning stages of an innovation tends to result in a lack of ownership by the teaching staff. When the teaching staff does not have ownership in the change process, the innovation is destined to fail (Kouzes and Posner 1995). Second, the inconsistent manner in which the training for this innovation was provided for the teaching staff may have negated the negative relationship between years of experience and willingness to accept innovation. Not only did the central office mandate this innovation, they also planned and provided the foundation of professional development relative to the proposed change. Once this foundation was developed, each elementary building was expected to complete the training necessary to adequately prepare the teachers for the change process. Since there was no district-wide professional development plan at the building level to prepare the staff for this innovation, each building progressed at a different rate. This lack of structure in the professional development for the change process may have resulted in an inconsistent implementation of the innovation.

Researchers had mixed views on whether the possession of tenure encouraged teachers to be more accepting of change. One camp depicted tenure as decreasing teachers' tolerance of change. Two factors supported this premise: The inability to dismiss inflexible staff and the defensive nature of tenured teachers. On the other hand, the research indicated tenure was an essential ingredient to significant change because it provided a sense of security, which is necessary for people who need to take the risks required for change. This study did not reveal a significant relationship between tenure and willingness to accept an innovation.

Based on the literature, a teacher would be more accepting of an innovation the more participatory the teacher perceived the school climate to be. This is based on the premise that participation in the change process fosters ownership. This prompts the development of collaboration time and synergetic relationships which are necessary in an effective organization. The ownership and teamwork created in an organization resulted in a raised level of awareness for the leader. All of this is vital to the professional development of staff as well as the efficiency of the organization.

The findings of this study did not statistically significantly support this type of relationship hypothesis. Teachers with higher management style scores were not more likely to belong to the later-stages-of-concern group than teachers with lower management style scores.

Implications of the Findings

Based on the results of this study, the relationship between the principal and the teacher that develops before the actual change process begins appears to have an impact on the teachers' acceptance of change during the change process. This would challenge the philosophy of some districts which support the practice of rotating their principals among buildings. Although some

districts rotate their principals based on a predetermined time schedule, other districts make these decisions arbitrarily.

Future Research

Since this study was limited in scope, a number of possible avenues for future study remain to be explored. First, this study involved only one educational innovation -- a new math program. Second, the study was mandated by the central office. Third, the participants of this study were elementary teachers who were mostly female. Fourth, this study did not investigate the possible influences of a match or mismatch between the gender of the teacher and principal on the teachers' willingness to accept an innovation. Studies that investigate these limitations of this study may prove informative.

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Table 1

Descriptive Statistics for the Dependent Variable and Independent Variables (N=61)

Variable	Minimum	Maximum	Mean	SD
Management style indicator	300.0	530.0	429.72	60.26
Years of teaching experience	1.0	34.0	13.72	10.14
Years working with the principal	1.0	12.0	4.92	3.74
Tenure status[a]	0.0	1.0	.52[c]	.50
Stage of concern group[b]	0.0	1.0	.41[d]	.50

[a] Tenure = 1; Non-tenured = 0

[b] Score on the CBAM in Stage 0, Stage 1 or Stage 2 = 0;
Score on the CBAM in Stage 3, Stage 4, Stage 5 or Stage 6 = 1

[c] Proportion of the 61 teachers with tenure.

[d] Proportion of the 61 teachers who scored highest on the CBAM in Stage 3, Stage 4, Stage 5 or Stage 6

Table 2

Logistic Regression Model

Independent Variables	Coefficient	Standard Error	Wald Test	p [a]
Years working with the principal	.161	.095	2.848	.046
Years of teaching experience	-.021	.038	.301	.292
Tenure status	-.306	.644	.225	.318
Management style score	-.002	.005	.141	---- [b]
Constant	.025	2.076	.001	.990
Nagelkerke R^2	.071			

[a] One-tailed test except for the constant term

[b] Since the coefficient had a sign in the opposite direction than the hypothesized size, the proability value is not reported.

Table 3

Change in Probability for a One Year Change in Years with the Principal

Initial Probability [a]	New Probability [b]	Change in Probability
.200	.228	.028
.300	.336	.036
.400	.440	.040
.500	.541	.041
.600	.639	.034
.700	.733	.033

[a] Each value represents the initial probability that a person is a member of the late-stages-of-concern group.

[b] Each value represents the change in the probability that a person belongs to the late-stages-of-concern group when the person has one additional year of experience with the principal.

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